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Development and Initial Validation of a Spiritual Support Subscale for the MOS Social Support Survey

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Abstract

While spirituality and religious practices are important in coping with illness or other crises, there are few ways of assessing support that people receive from members of their spiritual communities. The goal of this study was to validate a new spiritual support subscale for the Medical Outcomes Study Social Support scale (MOS-SSS). Questions for the subscale were formed based on responses of 135 breast cancer survivors who were interviewed about their cancer experience. Exploratory factor analysis resulted in four specific factors of the MOS-SSS: emotional/informational, tangible, affectionate, and spiritual support. The new spiritual support subscale has adequate reliability and validity and may be useful in assessing an area of support that is not always addressed.

Keywords

social support; spirituality; illness; psychometrics; cancer survivors

Background and Significance

Cancer patients face a bewildering array of treatments, side effects, and emotions. Availability and quality of social support can affect ability to cope with a cancer diagnosis and treatment (Bloom, 2004; Boinon et al. 2014; , Kroenke, Kubzansky, & Schern, 2006; Kroenke, et al., 2012; Leung, Pachana, & McLaughlin, 2014). Many people rely upon their social support networks to cope with illnesses and other crises. Social support can have a positive impact patient/survivor's health (Beasley et al., 2010; Kroenke et al., 2012). For those who have completed treatment, social support can enhance quality of lifeand help the individual re-enter “normal” life (Kroenke et al., 2006). Survivors often become socially isolated and less willing to participate in social activities due to pain, symptoms of disease, etc. In addition, those at highest risk for developing and dying of cancer are those least likely to utilize social support (Kroenke et al., 2006). Access to a supportive environment can prevent long-term psychological difficulties and positively impact general and mental

well-being (Green, Ferguson, Shum, & Chambers, 2012; Kroenke et al., 2006; Ruland et al., 2012).

Spirituality and Social Support

Many people turn to members of their spiritual/religious communities for support when undergoing a crisis such as cancer (Bussing et al., 2009; Campbell, Yoon, & Johnstone, 2010; see Levine, Yoo, Aviv, Ewing, & Au, 2007, 2009, 2012 & Milstein 2008 for reviews.. Spirituality has been shown to interact with social support to affect quality of life (Howsepian, & Merluzzi; 2009; Kristeller et al., 2011; Thune-Boyle, Stygall, Keshtgar, & Newman, 2006). People who belong to the same spiritual/religious communities can provide many types of support such as emotional (e.g., listening to the patient), tangible (e.g., taking the patient to doctor appointments, bringing food, etc.), and informational support (e.g., members who have had the illness or have information about it). While measures of spirituality and religious coping have been developed (e.g., FACITSP; Peterman, Fitchett, Brady, Hernandez, & Cella, 2002; RCOPE; Pargament, Koening, & Perez, 2000), there are few measures of actual support from spiritual communities. Idler, Boulifard, Labouvie, Chen, Krause, and Contrada (2009) developed a measure of religious experiences during worship services and found that poor physical functioning was related to less involvement in the congregation and less of a feeling of belonging to the institution. However, their measure did not include support from congregational members. Johnstone and colleagues (Johnstone, Yoon, Cohen, Schopp, McCormack, Campbell & Smith, 2012; Johnstone, Yoon, Franklin, Schoop, and Hinkebein, 2009) examined the Brief Multidimensional Measurement of Religiousness/Spirituality (Fetzer Insitute & National Institute on Aging Working Group, 1999) and were able to confirm a separate factor for religious support. Goldzweig, Hasson-Ohayon, Meirovitz, Braun, Hubert, and Baider (2009) developed a measure of spiritual support for cancer patients only. The scale contained three items on religious/spiritual support (one in terms of informational support, one for emotional support, and one for tangible support). These three items were significantly correlated with loneliness among cancer patients, and distress and marital satisfaction among spouses. The System of Beliefs Inventory (Holland et al., 1988) was designed as a measure of spiritual beliefs and support from religious communities. However, it focuses more on emotional support and seeking out of people who can provide help and support. There are no specific questions on tangible support and other religious behaviors (e.g., people who will pray with them). In addition, it is a spiritual scale, not a social support scale. Therefore, it may be missed by those interested in researching spiritual support. To our knowledge there are no measures of support from people in religious communities that have been included in general social support measures.

A commonly used social support scale is the Medical Outcomes Study Social Support Survey (MOS-SSS; Sherbourne & Stewart, 1991). This scale has been used in many studies, including studies of cancer patients (e.g., Ashing-Giwa & Lim, 2008; Ashing-Giwa, Tejero, Kim, Padilla, & Hellemann, 2007; Clough-Goor, Stuck, Thwin, & Silliman, 2009; Giedzinska, Meyerowitz, Ganz, & Rowland, 2004; Leung, Pachana, & McLaughlin, 2014). The MOS-SSS is a 19-item scale that covers four dimensions: emotional/informational support, tangible support, positive social interaction, and affectionate support. The instrument is a self-administered Likert scale with each item response ranging from 1 (none

of the time) to 5 (all of the time). Higher scores indicate greater levels of social support. Given the popularity of this measure and the benefits of spiritual and religious coping and support for some people when coping with an illness we developed a subscale for the MOS-SSS. The purpose of this paper was to evaluate the factor structure of a spiritual/religious support subscale for the MOS-SSS.

Methods

The development of a spiritual/religious support subscale for the MOS-SSS was part of a larger study of quality of life, mood, social support, and spirituality among breast cancer survivors from different ethnic groups. The three questions used in the spiritual support questionnaire were based on a review of measures of social support as well as initial interviews from some of the participants. Participants were specifically asked about types of social support they received as well as aspects of their spirituality that helped them cope with the experience. Their responses have been published elsewhere (Yoo, Levine, Aviv, Ewing, & Au, 2010). Briefly, the women reported feeling supported by members of their own religious institutions as well as others outside their institution. The most frequent examples of spiritual support were people praying with and for her (either at her religious institution or other places across the country and the world), receiving emotional support and comfort from religious leaders and members, tangible help including meals, and transportation to the hospital or to the religious institution. As these were the most frequent responses and were quantifiable the questions about having someone to pray with, talk to about religious or spiritual matters and guidance from as religious leader were used as the basis for the spirituality subscale. We did not include an item about tangible support from people in their religious/spiritual community as the MOS has a subscale for tangible support.

Participants

Women who were on average two years post-diagnosis for primary breast cancer were recruited from various sites in the San Francisco Bay Area. While it is true that their spiritual support needs may be difference after the end of therapy, our interest lay in whether they felt that they could rely on someone from their religious institution for support. Therefore, the women were able to provide information about perceived social support throughout their cancer experience up to that point. Eligibility criteria for study participants were: 1) diagnosed and treated not more than four years previously; 2) over the age of 18 at diagnosis; 3) Stage 0, I or II disease only; 4) able to read and speak English, Chinese, or Spanish; and 5) no prior history of breast cancer. All recruitment procedures followed HIPAA regulations. IRB approval was obtained from all participating investigators' research institutions and the Cancer Prevention Institute of California (CPIC). The women were recruited from a number of different sites (e.g., hospitals, ethnic organizations, cancer resource centers, health fairs). Initially, 348 letters were sent to women who had been seen at a local cancer center. An additional 1,097 letters were sent to women who were in the CPIC registry. The final sample was 180, representing 51% of the 352 women who contacted the study. One hundred seventy-six women called but were not eligible for the study. Reasons for ineligibility included unable to contact (13), diagnosed longer than four years previously (9), did not have Stage 0, I, or II cancer (10), lived too far away to be

interviewed (22), was currently in treatment (10), and did not speak English, Spanish, or Chinese (5). Reasons for ineligibility were not available for 109 women. A further 22 women dropped out of the study (two were deceased) after the first interview. Therefore, by the time of the second interview when the new subscale was piloted 135 women remained in the study. The demographics of the overall sample are shown in Table 1. There were no significant differences in terms of demographics or stage of disease between the ones who dropped out and those who remained in the study.

Procedure

Once a woman contacted us and was found to fit all of the eligibility criteria, a research assistant contacted her to set up an interview. At the time of the interview the women completed several measures (reported elsewhere; Levine et al., 2008). The relevant measures for this paper were the Medical Outcomes Study- Social Support Scale (MOS-SSS; Sherbourne & Stewart, 1991), and the Functional Assessment of Chronic Illness Therapy-Spirituality-Ex (FACIT-SP-Ex; Peterman, Fitchett, Brady, Hernandez, & Cella, 2002). The MOS-SSS and FACIT-Sp-Ex that the women completed at the first follow-up (approximately six months after baseline when the spirituality subscale was included) were used in this analysis.

The MOS Social Support Survey (Sherbourne & Stewart, 1991), is a 19-item scale that covers four dimensions of support: emotional/informational (range 8-45), tangible (range 4-20), positive social interaction (range 3-15), and affection (range 3-15), plus one additional question (See Appendix A for the original subscales and the added additional spiritual support questions). Reliability is .96 for emotional/informational, .92 for tangible, .94 for positive social interaction, .91 for affection, and .97 overall). The addition of a new subscale was supported by one of the original authors of the scale (A. Stewart, personal communication).

Spirituality was measured using the Functional Assessment of Chronic Illness Therapy-Sp-Ex (Bredle, Salsman, Debb, Arnold, & Cella, 2011; Cotton, Peterman, Leonard, & Tsevat, 2008)). The original version contained 12 items. Although the original factor analysis resulted in only two factors (meaning/peace and faith/assurance; Peterman et al.) Murphy et al. (2010) conducted a confirmatory factor analysis, which showed three subscales: meaning, peace, and faith. The FACIT-Sp-Ex consists of 22 items divided into four subscales: faith (range 0-16), meaning (range 0-16), peace (range 0-16), and additional spiritual concerns (connectedness, compassion, forgiveness, range 0-40). Overall reliability is .87, while reliability for the subscales is .78 for meaning, .83 for peace, 88 for faith, and .89 for the additional items (Bormann et al., 2006; Peterman et al., 2002). Socioeconomic and demographic variables included age, income, religious preference, education, marital, and employment status. We also measured time since diagnosis, stage of cancer, and type of treatment.

Statistical Analyses

Exploratory factor analysis (EFA) with principal components analysis and varimax rotation was used to assess the structure of the new subscale as well as the MOS-SSS with the

subscale included. EFA is used to identify specific factors that explain the covariation among a set of measured variables (Kahn, 2006). In this particular EFA, the original 19 items of the MOS were included as well as the additional 3 items composing the spirituality subscale. In order to determine the number of components to keep a parallel analysis (PA; Horn, 1965) was chosen as the factor criterion of choice. PA is superior to other factor analysis methods as it adjusts for sampling error and may more accurately determine the correct number of components over that of other methods, especially when there is no a priori theory. It is also used in test construction (Hayton, Allen, & Scarpello, 2004; Humphreys & Montanelli, 1975; Silverstein, 1987; Velicer , Eaton, & Fava,.2000). In order to apply PA to our data, we utilized the syntax written by O'Connor (2000).

In PA, a random dataset is created based on the observations and variables of the real dataset (Step 1; Hayton et al., 2004). From the random dataset, principal components analyses were conducted and Eigenvalues (EV; Step 2) extracted for the same components that exist in the real dataset. Steps 1 and 2 are then conducted over 500-1000 trials, allowing for the computation of both mean EV and 95th percentile EV for each of the components (Hayton et al.). Next, the EV from the components in the real dataset were compared to those of the random dataset (using either the mean EV or 95th percentile EV as the comparison point). If the EV of the real dataset exceeded those of the random dataset, then that particular component was kept. Since.using the 95th percentile EV is similar to having an α of .05 for Type I error we chose the 95th percentile EV as our standard of comparison. Finally, reliability analyses were conducted on each of the finalized subscales and overall scale.

Results

The mean age of the participants in the overall sample was 57 (sd=12.0, range =31-83) and time since diagnosis was 23 months (sd=9.93, range = 4-48). Almost half of the women (49%) were within two years post diagnosis. Although the majority of women (67%) came from the US, there were a wide variety of countries of origin. As seen in Table 1 there was an even distribution of race/ethnicity, with the exception of the Latina group, which was smaller than the others. Over half (54%) of the sample was married, and the majority of the women (59%) had at a college or post-graduate degree. While the women came from a variety of religious backgrounds, the vast majority was either Catholic (25%) or Protestant (32%). Ten women (6%) stated that they had Stage 0 or 0-I disease while 83 (46%) had Stage I or I-II disease, 85 (46%) had Stage II or said that they had Stage II-III disease. Almost all of the women had surgery (97%) and/or radiation therapy (70%), half (54%) had chemotherapy, and over half (62%) were undergoing hormonal therapy.

Bivariate Correlations

Data on the new subscale were available for 135 of the participants.. The mean of the three items was 11.45 (SD=3.48) and the new subscale was significantly correlated with all of the FACIT-Sp subscales (meaning r=.26, p=.002; peace r=.20, p=.02; faith r=.62, p<.000 & additional items (r=.37, p<.000) as well as the three of MOS-SSS subscales (emotional/ informational r=.32, p<.000; affectionate r=23, p=.003; & positive social interaction r=.24, p.005). The correlation with tangible support approached significance (r=.15, p=.08).

Exploratory Factor Analysis

A concern with EFA is the sample size required to have a reliable effect. While there does not seem to be a consensus on what an adequate sample size is (MacCallum, Widaman, Zhang, & Hong, 1999), Costello and Osborne (2005) suggested that even when using a 20:1 subject to item ratio there may be errors in terms of identifying the correct factor structure. However, MacCallum, Widaman, Zhang, and Hong (1999) argued that if communalities were high (over .60) sample size has “less of an impact” on the factor structure (p. 96). Our subject to item ratio was 17:1 and communalities ranged from .7 to .916. Therefore, we believe that our sample size was sufficient.

Initial factor loadings for the MOS-SSS included four factors: emotional/informational support (EV=10.29), affectionate support (EV=2.43), tangible support (EV=2.23), and spiritual support (EV=1.72). Parallel analysis (PA) also supported these findings. In PA, emotional/informational support (mean EV=1.81; 95th % EV=1.95), affectionate support (mean EV=1.66; 95th % EV=1.76), tangible support (mean EV=1.55; 95th % EV=1.64), and spiritual support (mean EV=1.46; 95th % EV=1.53) all met requirements to be accepted as factors (see Table 2). However, the three items of the subscale Positive Social Interaction loaded onto the Affectionate Support subscale with loadings ranging from .75 to .81. Furthermore, the additional item also loaded onto the Affectionate Support subscale with a loading of .65. Reliability, intercorrelations, and correlations corrected for attenuation are presented in Table 3 using the format proposed by Schmitt (1996; see Appendix B for the final subscale items).

Discussion

Through our exploratory factor analysis we were able to confirm three of the first four original subscales (Emotional/Informational, Affectionate, and Tangible Support) as well as the new spiritual subscale. All four subscales (Emotional/Informational, Tangible, the combined Affectionate and Positive Social Interaction, and Spiritual) passed the conservative 95th% Eigenvalue criterion. In addition, the reliability and intercorrelations of the subscales demonstrated that the spirituality subscale was in fact consistent and discriminant in providing unique information from the other subscales, yet was significantly correlated to another measure of spirituality (FACIT-Sp-EX), showing construct validity.

However, the items on the previous subscale of Positive Social Interaction and the one additional item now loaded on the Affectionate Support subscale. It could be argued that the items on both the Affectionate and Positive Social Interaction subscales as well as the one additional item may represent the activities of people who are affectionate towards the person taking the survey; more of an outcome of affection than affection as an emotion. When viewed in this light it makes sense that the items on each subscale would load together.

There is a body of evidence on the importance of spirituality when coping with illness, especially for certain racial/ethnic groups (e.g., Kristellet et al., 2011; Levine et al., 2007; Mazzotti, Mazzuca, Cebastiani, Scoppola, & Marchetti, 2011; Visser, Garsen, & Vingerhoets, 2009; Whitford, Olver, & Peterson, 2008). The importance of having a

separate subscale for the MOS-SSS lays in the fact that spirituality and religious coping are important in coping with crises, including medical illnesses (e.g., Bussing et al., 2009; Campbell et al., 2010; Levine et al., 2012; Milstein 2008). However, while our sample was racially and ethnically diverse the numbers of women in each group was to small for meaningful comparisons to be made. Future research using larger sizes are needed to verify the factor structure of the MOS-SSS with the new spiritual support scale as well as examine any ethnic and or cultural differences.

As the MOS-SSS is widely used in biopsychosocial research it is possible that the additional spiritual subscale may add another dimension to assessment of social support. While we were also to show that the new subscale was significantly correlated to the FACIT-Sp-EX it would also be useful to compare the new subscale with other established measures of spirituality, spiritual coping, and social support. This study can be viewed as a first step in developing a measure of spiritual and religious support for people with a variety of illnesses. Identification of people who rely on their spirituality to cope with an illness but don't feel supported by their spiritual community could be important for some people. For those to whom spirituality is important in coping with illness identification of areas of spiritual support that may be lacking may influence the development of tailored interventions to reduce distress (including spiritual distress) and increase adjustment to illness.

Limitations

It could be argued that a limitation of this study is the small sample size. However, as described earlier, there has been no consensus on an optimal sample size for a EFA and our communalities were sufficiently high for a precise factor loading. A greater limitation may be that the data for this study were collected in a particular are of the US and therefore may not be generalizable to other parts of the country or other countries or to people with other types of illnesses or stressors. While we feel that our sample had a good representation of various ethnic and cultural groups further differences may be found by comparing a variety of cultural and ethnic groups and subgroups. In addition, we included people who did not follow a particular spiritual tradition. Therefore, it could have been hard for them to answer the questions in a positive light, and there may have been a skew towards lower scores because people didn't feel a need for spiritual support. However, the mean score for the 26 women who indicated that they didn't practice a tradition was 9.35 (SD=3.35) out of a total of 15. Since there are three items on the subcale, the average per item would be 3.12, which corresponds to an answer of “some of the time”. It's possible that even if the woman herself was not part of a spiritual tradition she still felt support from others who were religious and or spiritual. Since the validity and reliability for both scales are good, the additional subscale could be included or not as the research question warranted.

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Appendix A – Original MOS Survey

Emotional/Informational Support Subscale:

- Someone you can count on to listen to you when you need to talk.
- Someone to give you information to help you understand a situation.
- Someone to give you good advice about a crisis.
- Someone to confide in or talk to about yourself or your problems.
- Someone whose advice you really want.
- Someone to share your most private worries and fears with.
- Someone to turn to for suggestions about how to deal with a personal problem.
- Someone who understands your problems.

Tangible Support Subscale:

- Someone to help you if you were confined to bed.
- Someone to take you to the doctor if you needed it.
- Someone to prepare your meals if you were unable to do it yourself.
- Someone to help with daily chores if you were sick.

Affectionate Support Subscale:

- Someone who shows you love and affection.
- Someone to love you and make you feel wanted.
- Someone who hugs you.

Positive Social Interaction Subscale:

- Someone to have a good time with.
- Someone to get together with for relaxation.
- Someone to do something enjoyable with.

Additional Item:

- Someone to do things with to help you get your mind off things.

Spiritual Support Subscale: Not included in original MOS Survey

- Someone that will pray for you.
- Someone that you can talk to about spiritual matters.
- A religious leader that will provide you spiritual advice/guidance/encouragement.

Appendix B: EFA Results

Emotional/Informational Support Subscale:

- Someone you can count on to listen to you when you need to talk.
- Someone to give you information to help you understand a situation.
- Someone to give you good advice about a crisis.
- Someone to confide in or talk to about yourself or your problems.
- Someone whose advice you really want.
- Someone to share your most private worries and fears with.
- Someone to turn to for suggestions about how to deal with a personal problem.
- Someone who understands your problems.

Tangible Support Subscale:

- Someone to help you if you were confined to bed.
- Someone to take you to the doctor if you needed it.
- Someone to prepare your meals if you were unable to do it yourself.
- Someone to help with daily chores if you were sick.

Affectionate Support Subscale:

- Someone who shows you love and affection.
- Someone to love you and make you feel wanted.
- Someone who hugs you.
- Someone to have a good time with
- Someone to get together with for relaxation
- Someone to do something enjoyable with
- Someone to do things with to help you get your mind off things

Spiritual Support Subscale:

- Someone that will pray for you.
- Someone that you can talk to about spiritual matters.
- A religious leader that will provide you spiritual advice/guidance/encouragement.

Biography

Dr. Ellen G. Levine is a clinical (medical) psychologist and epidemiologist specializing in psychosocial oncology spirituality, racial/ethnic differences, rheumatology, and end of life care. Her current position is adjunct faculty in the Department of Psychology at Walden University. She is a co-founder of the Cancer disparities Research Group at San Francisco State University. Stephen Vong holds a Master of Science degree in Industrial/ Organizational Psychology and worked as a research assistant at San Francisco State University under the Cancer Disparities Research Group.

Dr. Grace J. Yoo, Ph.D., M.P.H. is a medical sociologist and professor and chair of Asian American Studies at San Francisco State University. She is a co-founder of the Cancer disparities Research Group at San Francisco State University.

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Table 1

Demographics

Variable	N(%)
Age M(sd)	57(12)
Time since Diagnosis M(sd)	23(9.93)
Ethnicity	
African American	47(26)
Asian/Pacific Islander	52(29)
White	54(30)
Latina	25(14)
Married	96(54)
Education	
High School or less	19(10)
College or Post College Degree	107(59)
Religion	
None/Not Practicing	33(18)
Catholic	45(25)
Protestant	58(32)
Jewish	7(14)
Other	28(16)
Income greater than $59,000	91(45)
Stage I disease	83(46)
Stage II disease	85(46)
Type of therapy	
Surgery	173(97)
Chemotherapy	96(54)
Radiation	125(70)
Hormonal	110(62)

Table 2

Exploratory Factor Analysis Eigenvalues.

Factor	Actual Eigenvalue	Mean Eigenvalue	95th % Eigenvalue
Emotional/Informational Support	10.29	1.81	1.95
Affectionate Support	2.43	1.66	1.76
Tangible Support	2.23	1.55	1.64
Spiritual Support	1.72	1.46	1.53

Table 3

MOS Social Support Reliability, Correlations, and Correction for Attenuation.

Factor	Emotional/Informational Support	Affectionate Support	Tangible Support	Spiritual Support	MOS Overall
Emotional/Informational Support	(.94)	.64	.61	.38	.93
Affectionate Support	.60	(.93)	.50	.50	.91
Tangible Support	.57	.47	(.94)	.15	.77
Spiritual Support	.33	.44	.13	(.82)	.63
MOS Overall	.87	.85	.72	.55	(.93)

Note: Diagonal rows are reliability, below diagonals are uncorrected correlations, and above diagonals are correlations corrected for attenuation.